

777D

Off-Highway Truck



Cat® 3508B EUI Engine

Gross Power	746 kW	1000 HP
Flywheel power	699 kW	938 HP

Maximum Gross

Machine Weight	161 000 kg	355,000 lbs.
SAE 2:1 Capacity	60.1 m ³	78.6 yd ³
Payload Capacity	90.9 mt	100 tons

777D Off-Highway Truck

Engineered for performance, designed for comfort, built to last.

Power Train

The power train is designed and built by Caterpillar, starting with the high torque rise, electronic Caterpillar® 3508B diesel engine, through the seven-speed power shift transmission. This assures the highest standards for quality, performance and efficiency. Matched power train components result in less shifting, faster speeds and greater reliability. **pg. 4-5**

Engine & Power Train Integration

The Caterpillar Data Link electronically combines engine, transmission and brake information to optimize overall truck performance. The Electronic Technician (ET) gives access to stored diagnostic data, significantly reducing downtime. **pg. 6-7**

Oil-cooled Rear Disc Brakes

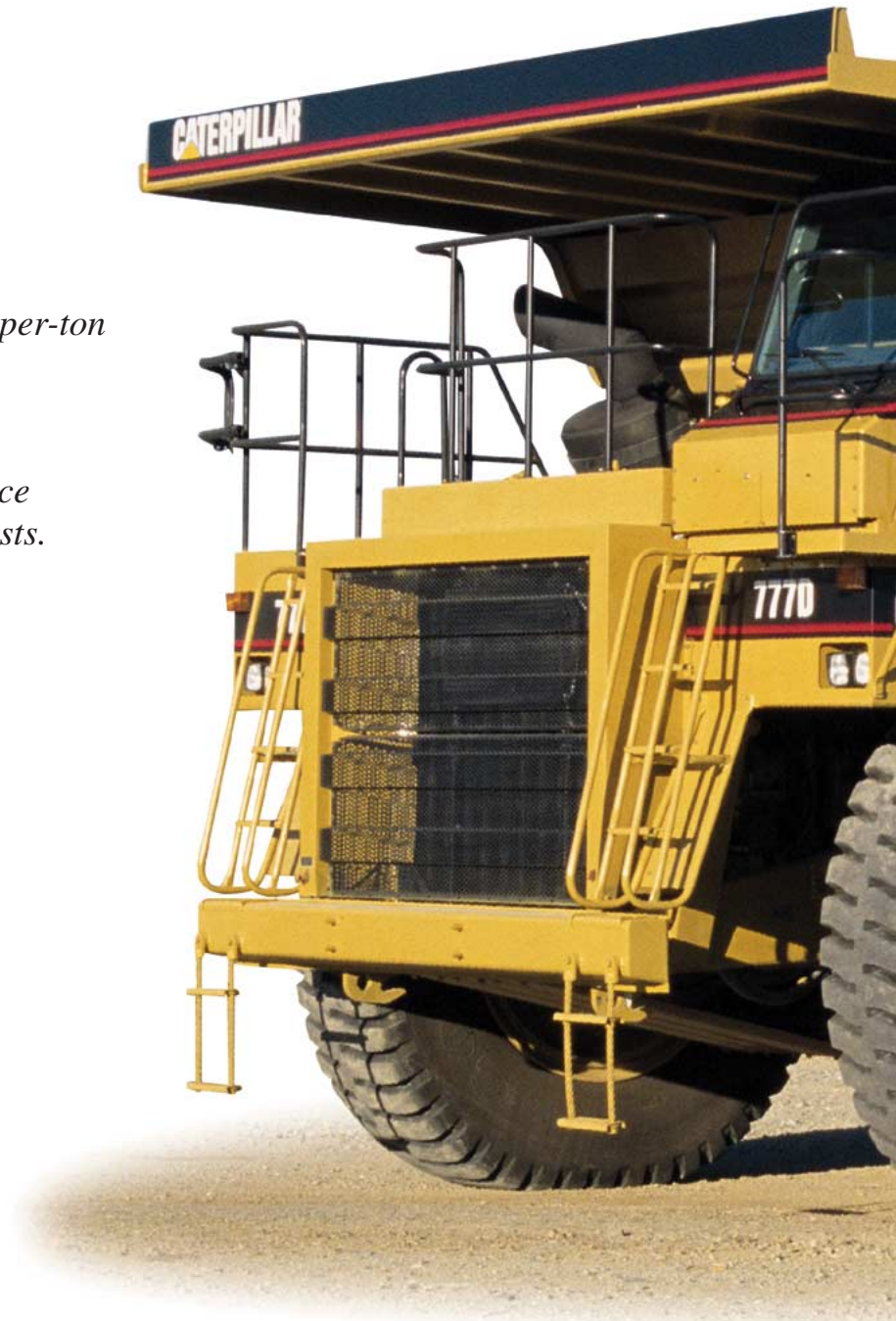
Caterpillar forced oil-cooled, multiple disc brakes are continuously cooled for exceptional, non-fade braking and retarding. The optional Automatic Retarder Control, Traction Control System (TCS) and Front Oil Cooled Brakes enhance truck performance and increase productivity. **pg. 8**

Top performance.

A truck for high production and low cost-per-ton hauling in off-highway applications.

Reliable, durable operation.

Rugged construction and easy maintenance guarantee long life with low operating costs.



Structures

Caterpillar truck frames are built to resist the most severe twisting, high impact applications. Mild steel provides flexibility, durability and resistance to impact loads even in cold climates. The frame incorporates 22 castings and 2 forgings in high stress areas, providing two-and-one-half to three times the strength of equivalent sized fabricated structures. **pg. 10**

Operator's Station

The 777D operator's station is ergonomically designed for total machine control in a comfortable and productive environment. All controls, levers, switches and gauges are positioned to maximize productivity. The cab includes a large storage compartment, air suspension seat and advanced electronic monitoring system. **pg. 12-13**

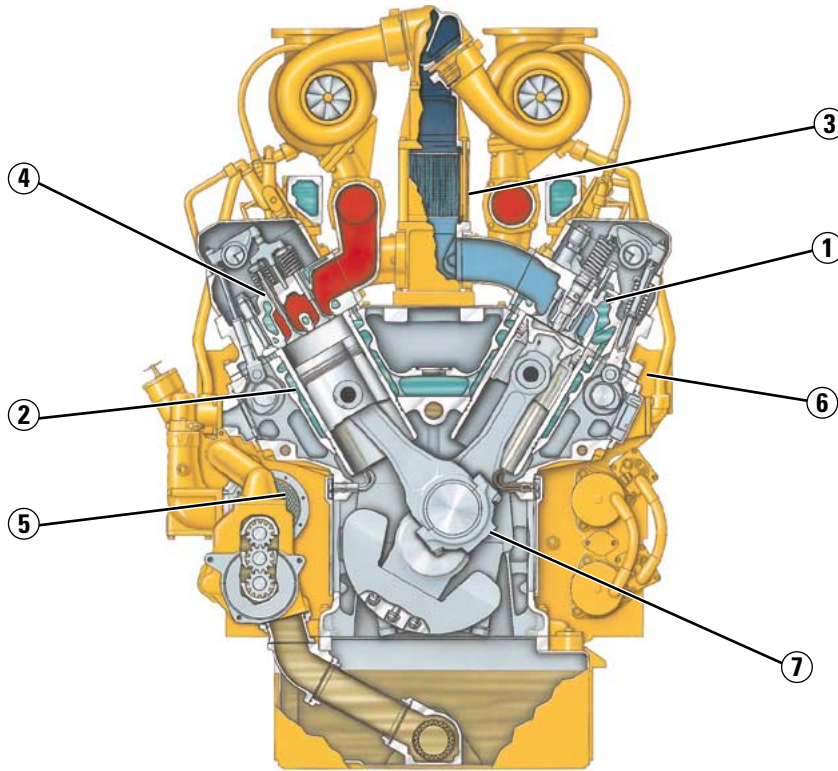
Steering & Suspension

Front cylinders serve as steering kingpins for tight turning radius and built in camber and caster. Large diameter, low pressure suspension cylinders provide long life and low operating and rebuild cost. **pg. 15**



Engine

The eight-cylinder, turbocharged and aftercooled 3508B engine with EUI fuel system is built for power, reliability and economy, and meets all worldwide emissions standards.



The **Cat 3508B diesel engine** is a four-stroke design and uses long, effective power strokes for more complete fuel combustion and optimum efficiency. The 3508B is designed with high displacement and a low speed rating for long hours of service between scheduled overhauls and lower operating costs.

The **23% torque rise** provides high lugging force during acceleration and less down-shifting on grade or in rough underfoot conditions. The torque curve effectively matches the transmission shift points to provide maximum efficiency and faster cycle times.

Unmatched Combustion Efficiency:

1 Electronic Unit Injection (EUI) is a proven high-pressure, direct injection fuel system. This system electronically monitors operator and sensor inputs to optimize engine performance.

2 Deep crater piston and low crevice volume provide a more efficient combustion. (see bottom right photo)

3 Separate Circuit Aftercooling (SCAC) allows the aftercooler circuit to operate cooler than the jacket water temperature for denser air charge and improved combustion.

- **Streamlined air system** improves combustion system efficiency and decreases exhaust temperatures.
- **3508B EUI** has 2% improved specific fuel consumption over the former 3508 EUI.
- **Reduced NOx** and particulate levels.

Proven reliability and durability by electronically protecting the engine during:

- Cold starts
- High altitude operation
- Operation with plugged air filters

Easier maintenance and repair through monitoring key functions and logging critical indicators. Electronic diagnostic access is possible with a single tool, the Electronic Technician (ET).

4 Valve rotators

5 Oil cooler

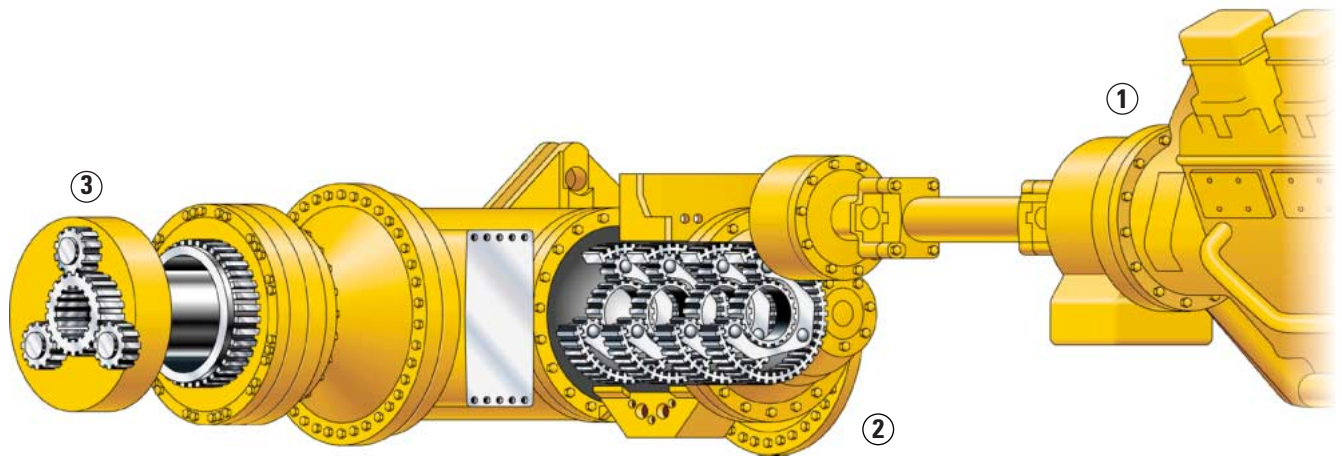
6 Self-aligning roller followers

7 Steel-backed copper bonded bearings



Power Train

Completely designed and manufactured by Caterpillar to assure maximum efficiency, high quality, long service life and low operating costs.



The Cat seven-speed power shift transmission, matched with the direct-injection Cat 3508B diesel engine, provides constant power over a wide operating speed range for maximum efficiency.

1 The lock-up torque converter

combines the maximum rimpull and cushioned shifting of torque converter drive with the efficiency and performance of direct drive.

- It locks up at approximately 6.4 km/h (4.0 mph) for superior power train efficiency by delivering more power to the wheels.
- The lock-up clutch will quickly release and re-engage during shifts to maintain power wind-up and maximum power train efficiency for smooth shifting, improved transmission life and increased operator comfort.
- Provides maximum rimpull of 53 300 kg (117,500 lb) to provide high gradeability and fast acceleration.

2 The seven-speed, planetary power shift transmission utilizes a modulating pressure valve to regulate clutch pressure rise and fall to ease clutch engagement. This reduces shock loads on power train components.

- Large diameter clutches and robust planetary gears and bearings.
- Patented rotating clutch pressure seals minimize drag losses and improve reliability.
- Separate transmission, hydraulic and steering oil reservoirs prevent cross contamination.
- 35% gear splits between all gears match Cat engine design for optimum use of engine power with minimized shifting and torque converter use.

3 Final drive and differential torque multiplication of 19.16:1 further reduces stress on the drive train.

Drive shaft. The transmission is mounted directly to the rear axle housing, so the 777D requires only one drive shaft and one set of U-joints

Full floating axles are shot peened to relieve internal stresses and increase durability. Rolled splines also provide increased service life.

Removable final drives and wheel groups improve serviceability for decreased downtime.

Cast rear wheels and Cat center-mount rims are mounted using studs and nuts (not wedge-mounts) to minimize maintenance and provide outstanding durability.

Engine/Power Train Integration

Combining the electronic Engine Control Module (ECM) with the Caterpillar Transmission Chassis Controller (TCC) allows critical power train components to work more intelligently.

The Caterpillar exclusive electronic integration optimizes overall power train performance, reliability and component life for reduced power train operating costs.

The CAT Data Link electronically integrates the machine's computer systems, which allows communications and provides the following benefits:

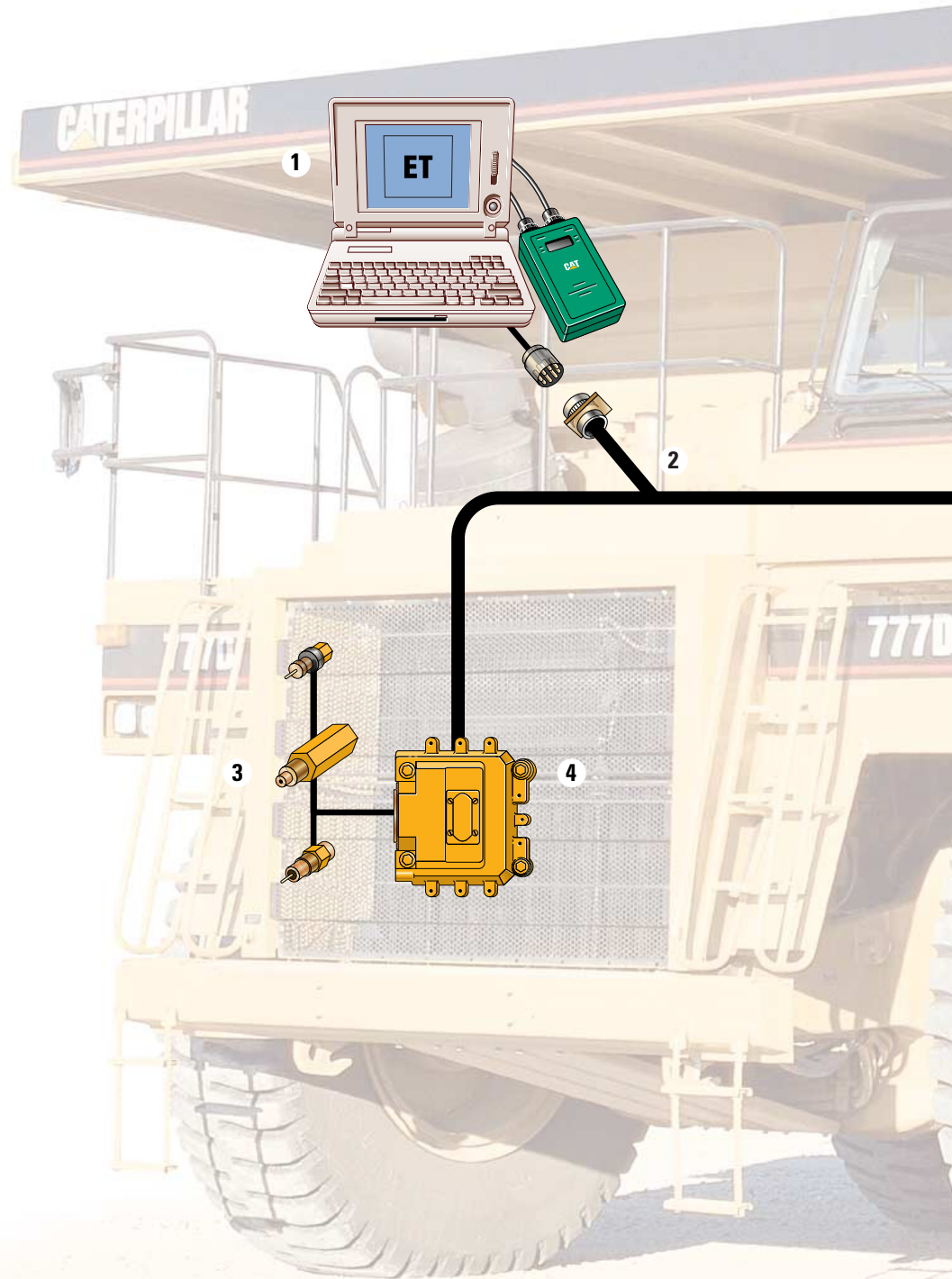
- **Controlled Throttle Shifting** – Engine RPM is regulated during a shift to reduce driveline stress for smoother shifts and longer component life.
- **920 GHP Option** – The mechanic can select a 920 ghp engine setting using the Electronic Technician (ET). This allows matching to crusher and loader limitations with possible fuel savings.
- **Directional Shift Management** – Regulates engine speed during directional shifts to prevent damage caused by high speed directional changes.
- **Neutral Coast Inhibitor** – Helps prevent the transmission from shifting to neutral at speeds above 6.4 km/h (4.0 mph).
- **Body Up Shift Inhibitor** – Helps prevent the transmission from shifting above a pre-programmed gear without the body fully lowered.

Improved Diagnostics/Serviceability.

The electronic engine and transmission controls provide enhanced diagnostic capability. The ability to store both active and intermittent indicators will simplify problem diagnosis and total repair time, resulting in improved mechanical availability and lower operating cost.

- Access to diagnostic data is made easy through the use of a single service tool - ET.

- ET accesses data stored in the engine and transmission controls via the Cat Data Link. Information on engine boost pressure, fuel consumption, engine speed and transmission shift data can be retrieved by ET.
- ET is also a powerful diagnostic tool. It replaces 13 mechanical tools to perform functions like cylinder cut-out checks, injector solenoid test and timing calibration.

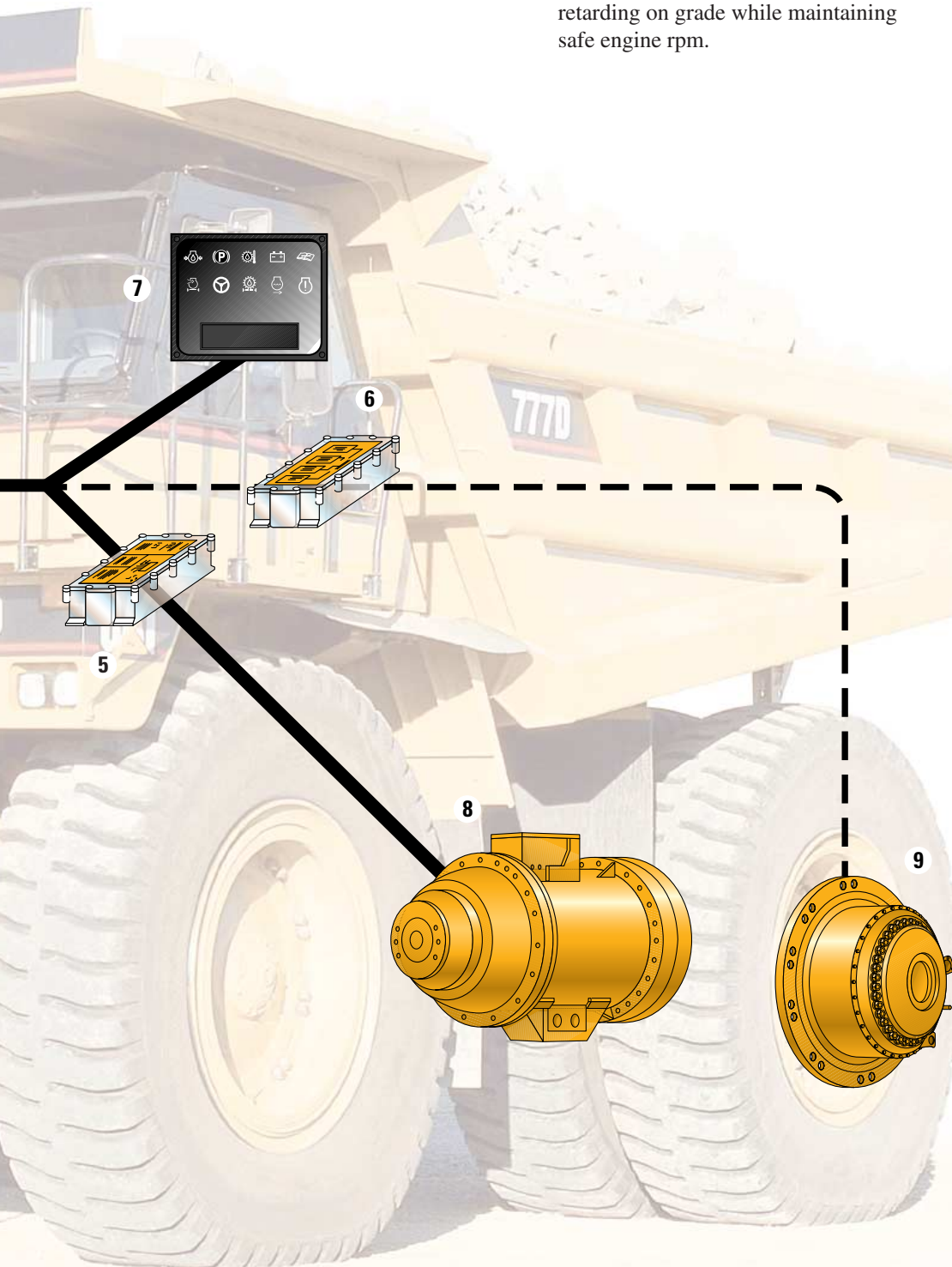


Electronic Monitoring System (EMS II) allows the operator to view requested information and utilizes a three-category warning system to alert the operator to abnormal machine conditions.

Caterpillar offers optional attachments that integrate with the CAT Data Link System.

- **Automatic Retarder Control (ARC)** works with the other electronic components to automatically control retarding on grade while maintaining safe engine rpm.

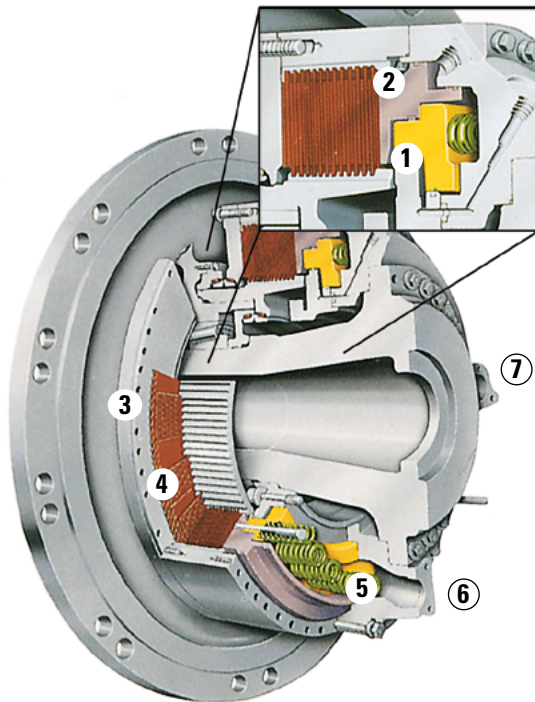
- **Traction Control System (TCS)** improves performance in poor underfoot conditions by electronically monitoring and controlling wheel slippage.
- **Integrated Brake Controller (IBC)** combines ARC and TCS, reducing the number of electronic components and electrical lines.



- 1 Electronic Technician
- 2 Cat Data Link
- 3 Sensors
- 4 Engine Control Module
- 5 Transmission Chassis Controller
- 6 Automatic Retarder Control
Traction Control System
Integrated Brake Control
- 7 Electronic Monitoring System (EMS II)
- 8 Transmission
- 9 Oil-Cooled Brakes

Oil-cooled Disc Brakes

Reliable braking lets the operator concentrate on the work.



- 1 Parking/Secondary Piston
- 2 Service/Retarding Piston
- 3 Friction Discs
- 4 Steel Plates
- 5 Actuating Springs
- 6 Cooling Oil In
- 7 Cooling Oil Out

Caterpillar forced oil-cooled, multiple disc brakes are continuously cooled for exceptional, non-fade braking and retarding. The optional Automatic Retarder Control and Traction Control System utilize the oil-cooled brakes to enhance truck performance and increase productivity.

Oil-cooled disc brakes are designed and built for reliable, adjustment-free operation providing superior performance and service life in comparison to shoe-type and dry-disc systems.

An oil film prevents direct contact between the discs. This absorbs the braking forces by shearing oil and carries heat away, extending brake life.

A Caterpillar patented, two-piston design combines the service, secondary, parking brake and retarding functions.

- The primary piston is hydraulically actuated and provides both service and retarding functions.
- The secondary piston is spring-applied and is held in the disengaged position by hydraulic pressure.
- In the event hydraulic system pressure drops below a certain level, the spring-applied secondary piston will automatically apply the brakes.

Front oil cooled brakes (standard) see photo below

- Provides superior braking and handling in slippery underfoot conditions.
- Splits braking requirements between two axles to improve traction.
- Longer downhill hauls benefit from reduced rebuild frequency.

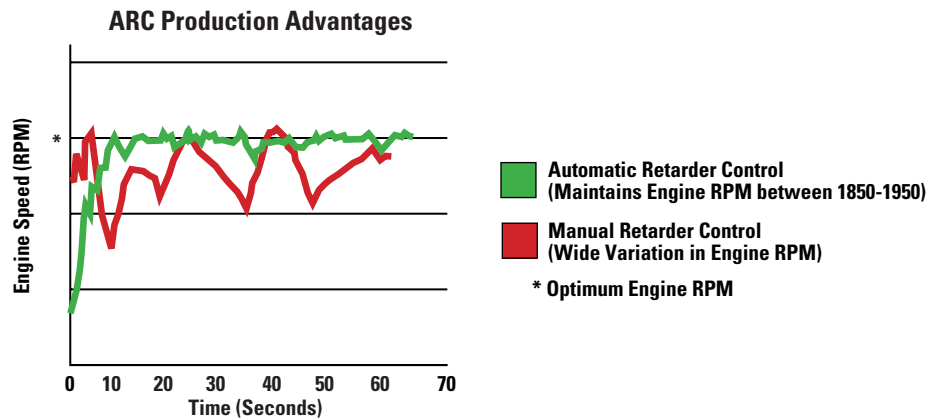
The retarding system has an intermittent rating of 1864 kW (2500 hp) and a continuous rating of 895 kW (1200 hp).

- When retarding, the engine runs against compression and fuel input is cut off; enhancing the efficiency of the machine.
- Retarding forces are absorbed at the wheels so there are no drive line stresses associated with a drive line retarding system.



Automatic Retarder Control/ARC (Optional)

Electronically controls braking on grades for improved engine and brake component life.



The Automatic Retarder Control (ARC)

electronically controls braking on grade to maintain approximately 1900 engine RPM (engine RPM is adjustable from 1850-1950 RPM in increments of 10 RPM). ARC is deactivated when the service brakes or throttle are applied. An auto resume feature reactivates the control.

Engine overspeed protection. ARC will automatically activate when engine speed exceeds factory preset levels, regardless of other operator inputs, including when the system is turned “off”, to help protect the engine from overspeed damage.

ARC results in...

- **Increased operator efficiency** with faster downhill speeds. By maintaining consistently higher engine speeds, overall truck speed will be higher than a manually controlled truck.
- **Excellent controllability and reduced operator effort.** Automatic brake modulation provides a smoother ride, better control in slippery conditions and allows the operator to focus more on truck operation.
- **Improved component life** from reduced torque and temperature fluctuations in the brake system.
- **Faster troubleshooting and diagnosis** with self-diagnostic capability and the ability to communicate with ET through the Cat Data Link.

Traction Control System (TCS) (Optional)

Electronically controls wheel slippage for improved performance.

Monitors wheel slip. If wheel slip exceeds the set limit, the oil-cooled disc brakes are automatically applied to slow the spinning wheel.

Provides operator awareness through an in-dash indicator, signifying TCS is engaged.

Utilizes normal differential action to provide superior maneuvering in poor underfoot conditions.

- Reduces tire scuffing when compared to positive lock differentials used on other systems.

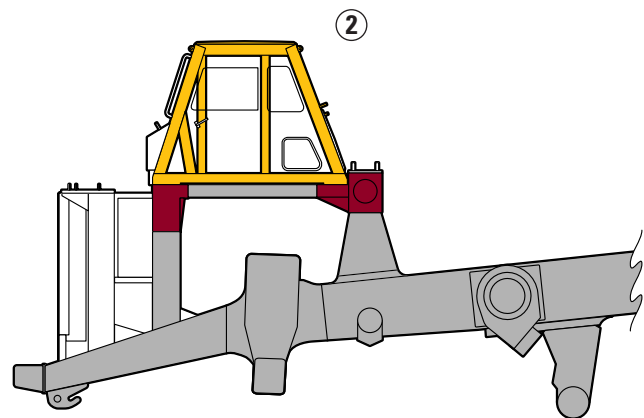
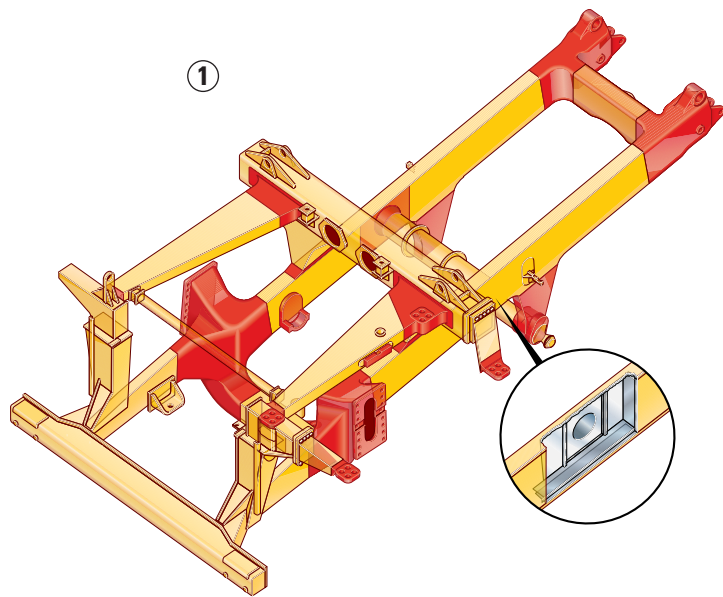
Divides torque equally to reduce stress created on final drives and axles when torque is transferred to one side.

Back-up design should the sensors fail, normal differential action is still available to maintain control and steering.

NOTE: Caterpillar offers Integrated Braking Control (IBC) (optional), combining ARC and TCS into one electronic control.

Structures

The backbone of the Cat truck.



The 777D frame uses a box-section design, incorporating 22 castings in high-stress areas, with deep-penetrating and continuous wrap-around welding. Mild steel is used throughout.

- Mild steel provides flexibility, durability, and resistance to impact loads even in cold climates.
- 1 Castings have large radii** with internal reinforcing ribs to dissipate stress. Castings move welds to lower stress areas and provide two to three times the strength of equivalent-sized fabricated structures.

The 777D frame provides for ease of serviceability.

- The box-section frame allows simple access to power train components. This “open design” reduces overall removal and installation time, lowering repair costs.
- Transmission access is excellent under the raised and pinned body.
- Repairs can be made without pre-heating in ambient temperatures above 16° C (60° F) using readily available welding supplies.

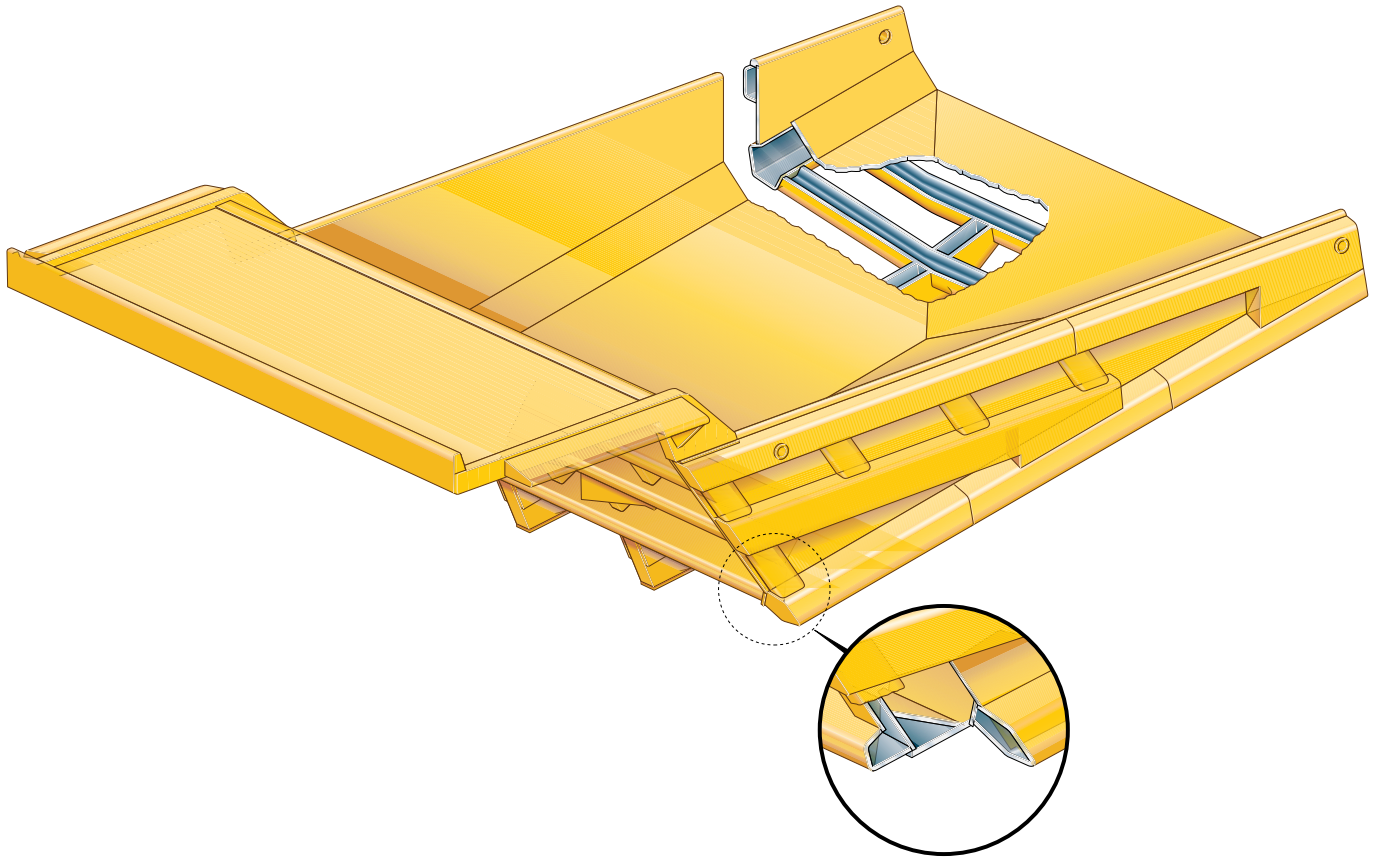
2 The Rollover Protection Structure (ROPS) attaches securely to four castings welded into the frame.

The suspension system is designed to dissipate haul road and loading impacts for extended frame life.

- Four, independent, variable-rebound, suspension cylinders absorb shocks.
- Rear cylinders allow axle oscillation and absorb the bending and twisting stresses.
- Front cylinders, mounted to the frame, serve as steering kingpins, providing excellent maneuverability and reduced maintenance. Caster and camber are preset.

Truck Body

Rugged, durable body is built to perform well in the toughest mining applications.



The 77D canopy extends to the front of the truck for excellent radiator and cowl protection.

The 77D 78.6 yd³ (60.1 m³) body provides the capacity to achieve rated payload in 2,900 lb/BCY material and maintain excellent load retention.

Body design maintains a low load height [4288 mm (14' 1'')] to allow faster, more confident wheel loader operation.

Dual-Slope floor design has excellent loading and hauling characteristics:

- **8° "V" bottom** for better load centering and reduced shock load.
- **10° forward body slope and 18° ducktail** help eliminate spillage on the grade.
- **Five-sided beams** join sidewall and floor junctions to resist impact loading and sustained hauling stresses.
- **Added impact resistance** from box section beams in floor, sidewalls, top rail, corner and cab canopy areas.
- **Two-stage dump cylinders** for fast dump and body return times. Fewer seals for less chance of leakage.

Body width provides complete coverage of the tires without the need for rock deflectors.

Liner (option) material is 400 Bhn, through-hardened, 130,000 psi minimum yield strength steel. This material has excellent wear characteristics and impact resistance.

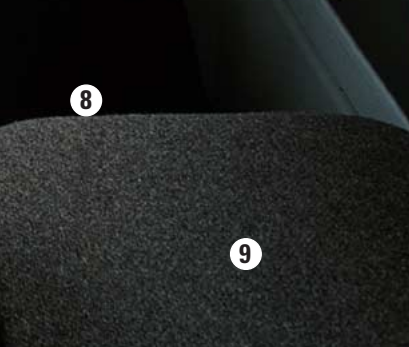
Operator Station

Control ease and comfort maximizes productivity.

The 777D operator station is rated highly by operators. Everything needed for top performance is at the operator's finger tips.

- 1 The wraparound dash panel** is provided in an easy line-of-sight arrangement, using LED backlit rocker switches.
- 2 The Caterpillar Comfort Air Suspension seat** is standard. The seat is fully adjustable and includes an adjustable right-hand armrest.
- 3 Tilt/telescoping steering wheel** with ergonomic grip improves comfort and control.
 - New steering system reduces operator effort by 55 percent.
 - Enhanced turn signal lever with high beam actuator and electric windshield wiper controls.
 - Ergonomically designed retarder lever.
- 4 Transmission console** has LED backlit gear numbers and ergonomic shift knob.
- 5 Exceptional all-around visibility** reduces fatigue and improves productivity.
- 6 Integral, sound-suppressed ROPS/FOPS Cab** is resiliently mounted, providing a quiet, protected work environment.
 - Radio-ready cab with speakers, wiring harness, antenna and mounting bracket.
- 7 Front brake cut-out switch** increases front brake component life.





- 8 Large storage compartment**
0.10 m³ (3.5 ft³) is located under the trainer's seat.
- 9 Trainer's seat** with increased hip/shoulder room, back rest, and retractable seat belt.
- 10 Electronic Monitoring System (EMS-II)** provides critical data. The system features three separate displays:
 - A four-gauge cluster with coolant temperature, oil temperature, brake air pressure, fuel level.
 - Tachometer, digital speedometer/actual gear indicator.
 - Message center module.
- 11 A standard heater and optional air conditioner** with four-speed fan and nine vents.
- 12 Ergonomically designed foot pedals** for increased operator comfort.
 - Secondary brake moved to floor.
- 13 Electric power window** for simplified operation.
- 14 Electrohydraulic hoist lever** is finger tip actuated and provides low-impact, body-down snubbing.

- 15 Truck Production Management System (TPMS) (optional)** provides payload and cycle time data.
 - **Cat developed technology** utilizes strut pressure sensors and an on-board microprocessor to determine payload weight.
 - **Accurate under normal loading conditions** to within ±5 percent over a normal operating shift.
 - **Delivers consistent accurate payloads** and improves efficiency by minimizing overloading and underloading.
 - On-board computer stores 1,400 cycles for further analysis of: payload weight, cycle segment times, cycle segment distances and actual clock time and date of each cycle.
 - External lights signal loading tool operator when payload is reached.
 - Internal troubleshooting and fault recording for easier maintenance.

Attachment Options

Allow you to customize the 777D for your specific application.

Truck Production Management System (TPMS) enhances truck and loader effectiveness for improved fleet productivity and reduced operating and maintenance costs.

Cat developed technology utilizes strut pressure sensors and an on-board microprocessor to determine payload weight accurately.

Maximizes truck production while avoiding future costs and downtime related to overloading. Maximizes your long-term investment through better load control and cycle data.

- External lights on both sides of truck signal loading tool operator when proper load is reached.
- On-board computer stores 1400 cycles for further analysis; payload weight, cycle segment times, cycle segment distances and actual clock time and date of each cycle.



- Internal troubleshooting and fault recording for easier maintenance.

Accurate under normal loading conditions to within $\pm 5\%$ over a normal operating shift.

TPMS gets consistent, accurate payloads by minimizing overloading and underloading. It maximizes long term production and machine life resulting in lower cost per ton.

Engine Prelubrication reduces engine wear by automatically building oil pressure before cranking over the engine.

- Automatically fills engine oil filters, oil galleries and ensures components such as the crank, cam, turbochargers and rockers have lubrication prior to engine cranking.

- Minimizes wear on engine components caused by dry or cold starts. Also allows fast, easy refill of oil into filters and galleries following routine oil changes.



Exhaust Diverter provides an exhaust muffler and diverter valve arrangement.

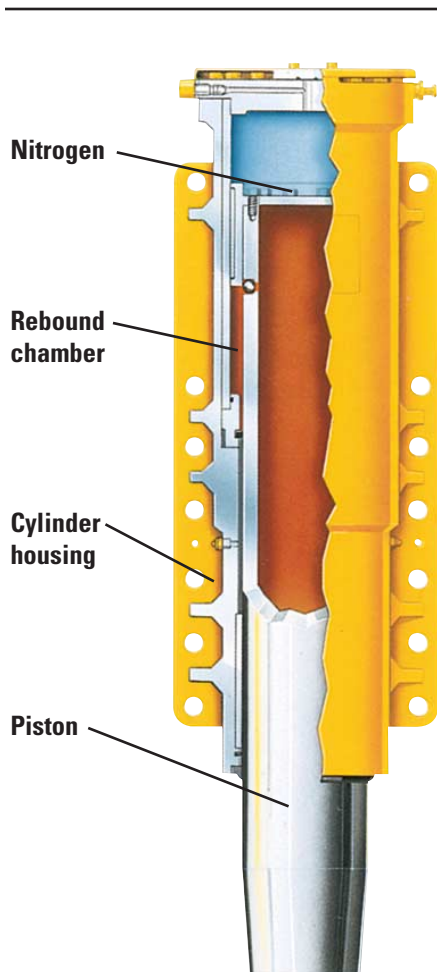
- Muffler/exhaust design allows truck body heating to occur with the body lowered and constant sound suppression with the body raised.

- In standard operation, the exhaust diverter routes exhaust through the body. While the body is raised, the diverter directs exhaust through the muffler.



Steering and Suspension

Rugged suspension and steering systems perform on rough haul roads and uneven terrain, shift-after-shift, day-after-day.



Variable flow hydraulic steering system is completely separate from main hydraulics.

Four independent, variable-rebound suspension cylinders provide excellent ride characteristics.

Rear cylinders allow axle oscillation. Bending and twisting stresses are absorbed rather than transmitted to the main frame.

Supplemental steering. Battery powered system automatically engages when needed.

Durable, simple design utilizing large diameter bore and low pressure nitrogen/oil. This design provides long life and low operating and rebuild cost.

Front cylinders mount to frame. Serve as steering kingpins for tight turning radius, good maneuverability and reduced operating cost.

Front spindles and wheels are rigidly mounted to the cylinder rods.

- Tire wear is minimized, lowering costs.
- Decreased maintenance costs by eliminating camber and caster adjustment.

Serviceability/Total Customer Support

When you buy a Caterpillar machine, you also get the Caterpillar total commitment to customer support.

Ground-level access provides convenient servicing to all tanks (except steering), filters, all lube points and compartment draining.

The maintenance platform provides access to engine oil level, air filters, steering hydraulic tank and battery compartment.

On-board diagnostics with EMS-II provides the machine operator with a three-category warning system and quick access to stored diagnostic data.

Off-board diagnostics with ET allows service technicians access to stored diagnostics data reducing downtime and lowering operating costs.

- ET stores engine parameter information such as timing, throttle position, and fuel flow.
- Transmission data is available through ET via access to the CAT Data Link System.

A ground-level battery disconnect switch facilitates safe, convenient servicing and maintenance.

Radial seal air filters are easy to change, reducing air filter maintenance times.

Quick coupler pressure taps located in all hydraulic systems provide clear, quick pressure checks. S•O•S Oil and Coolant Sampling Valves make fluid sampling quick, clean and easy.

Sealed electrical connectors lock out dust and moisture. The color-coding for wires is standard for the entire Cat product line.



Machine management service. Cat dealers help manage your equipment investments with:

- Vehicle systems analysis to match the right machine to the job.
- Preventative maintenance programs.
- S•O•S Fluid Analysis and Technical Analysis programs.
- Repair option analysis.
- Training for operators and mechanics.
- TPMS data analysis.

Parts availability. The caterpillar worldwide computer network locates parts instantly to minimize machine downtime.

Literature support. Caterpillar manuals are easy to use and help provide the full value of an equipment investment.

Engine

Four-stroke cycle, eight cylinder 3508B twin-turbocharged and aftercooled diesel engine.

Ratings at 1750 RPM*	kW	HP
Gross power	746	1000
Net power	699	938

The following ratings apply at 1750 RPM when tested under the specified standard conditions for the specified standard:

Gross power	kW	HP	PS
ISO 3046-2	746	1000	—
Net power			
Caterpillar	699	938	—
ISO 9249	699	938	—
EEC 80/1269	699	938	—
SAE J1349 (1/90)	699	938	—
DIN 70020	—	—	972

Max torque:

4713 Nm (3,476 lb-ft) @ 1300 rpm

Torque rise:

23 percent

Dimensions

Bore	170 mm	6.7 in.
Stroke	190 mm	7.5 in.
Displacement	34.5 liters	2105 cu in.

*Power rating conditions

- based on standard air conditions of 25°C (77°F) and 99 kPa (29.32 in Hg) dry barometer

- used 35°C API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) [ref. a fuel density of 838.9 g/L (7.001 lb/U.S. gal)]
- net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator
- no derating required up to 2288 m (7,500 ft) altitude

Features

- high pressure unit injection
- full electronic control
- two-piece piston with steel crown (three rings) and thermally isolated aluminum skirt
- copper-bonded crankshaft bearings
- hardened crankshaft journals
- two hard-faced inlet and exhaust valves per cylinder, valve rotators and hard alloy-steel seats
- self-aligning roller followers on cam shaft
- dry-type radial seal air cleaners with primary and secondary elements and precleaner
- direct-electric 24-volt starting system with 100-amp alternator and four 190-amp-hour, low-maintenance, high-output, 12-volt batteries
- optional air starting arrangement available

Transmission

Caterpillar seven-speed, electronically controlled, automatic power shift transmission.

Maximum travel speeds (standard 27.00 R49)

		km/h	MPH
Forward	1	10.5	6.5
	2	14.3	8.9
	3	19.3	12.0
	4	26.0	16.2
	5	34.9	21.9
	6	46.6	29.4
	7	60.4	39.9
Reverse		11.9	7.4

Features

- seven speeds forward and one reverse
- reverse is torque converter driven
- first gear has both torque converter drive and direct drive
- second through seventh gears are direct drive
- single-lever shift control provides automatic shifting in all gears up to the one selected by the control lever
- each shift is individually modulated for maximum smoothness
- separate hydraulic circuit with cooler
- electronic control has built-in diagnostics and facility code memory, event memory and programmable features
- body up shift limiter
- Controlled Throttle Shift (CTS)
- Directional Shift Management
- Neutral Coast Inhibitor

Brakes

Meets the SAE J1473 OCT90, ISO 3450-1996 (E) standards up to 161 021 kg (355,000 lb) gross operating weight.

Brake surface	
front (opt.)	2787 cm ² (432 in ²)
front (std.)	40 215 cm ² (6235 in ²)
rear	102 116 cm ² (15,828 in ²)

Features

- retarding system:
 - continuous rating 895 kW (1200 HP)
 - intermittent rating 1864 kW (2500 HP)
- secondary braking
 - spring applied, hydraulically released, oil cooled disc brakes
 - all brakes will activate as part of the secondary system

- parking brakes
 - spring-applied, hydraulically released
 - uses wet disc brakes in service system
 - toggle switch activated
- standard front oil-cooled
 - forced-oil-cooled
 - air-over-oil-actuated multiple disk brakes
 - improved control in slippery conditions

Final Drives

Planetary, full-floating.

Ratios

Differential	2.74:1
Planetary	7.00:1
Total reduction	19.16:1

Frame

Full box-section with torque tube crossmember.

Features

- integral front bumper
- front box beams for suspension cylinder and ROPS support.
- box-section rear crossmember for body and ROPS support with attachment points for maintenance platform and rear engine platform support
- castings are used to provide additional strength in critical stress areas
- mild-steel plates [290 MPa (42,000 psi) minimum yield strength] and castings [241 MPa (35,000 psi) minimum yield strength] provide:
 - flexibility
 - durability
 - easy field maintenance

Suspension

Independent, self-contained, oil-pneumatic suspension cylinder on each wheel.

Effective cylinder stroke:

Front	318 mm	12.5"
Rear	165 mm	6.5"
Rear axle oscillation		±5.4°

Exterior Sound Rating

This machine, in a standard configuration, when measured and operated as per the prescribed modes in ANSI/SAE J88 JUN86, has a 15 m sound pressure level of 90dB(A) for the mode that gives the highest level.

ROPS

Integral ROPS cab is standard.

- ROPS (Rollover Protection Structure) offered by Caterpillar for the machine meets ROPS criteria SAE J1040 MAY94, ISO 3471-1997
- When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed as per work cycle procedures specified in ANSI/SAE J1166 MAY90, results in an operator sound exposure L_{eq} (equivalent sound level) of 78 dB(A)
- This operator A-weighted sound exposure level can be used in conjunction with OSHA, MSHA and EEC Occupational Noise Exposure Criteria

Body Hoists

Twin, two-stage hydraulic cylinders mounted outside the main frame, double acting in second stage.

Features

- power raise in both stages and power down in first stage
- pump flow at high idle is 405.5 L/min (119 gpm).
- relief valve setting is 189.0 bar/ 18 962 kPa (2750 psi)
- body raise time (at high idle) is 15 seconds
- body lower time
 - float 13 seconds
 - power down at high idle 13 seconds

Steering

Separate hydraulic system.

Features

- twin, double-acting cylinders
- front suspension cylinders serve as kingpins
- automatically controlled, electric supplemental steering system as standard (meets SAE J1511 OCT90 and ISO 5010-1992) (E)
- turning diameter on front wheel track.
 - 25.3 m (83')
- machine clearance turning circle
 - 28.4 m (93'2")
- steering angle (left or right) 31.8°
- separate hydraulic system prevents cross-contamination
- lower steering wheel effort and reduced steering wheel cycle times with a new variable-displacement pump

NOTE: The turning diameter and machine clearance turning circle distances shown are measured in a controlled environment and may differ from actual field measurements.

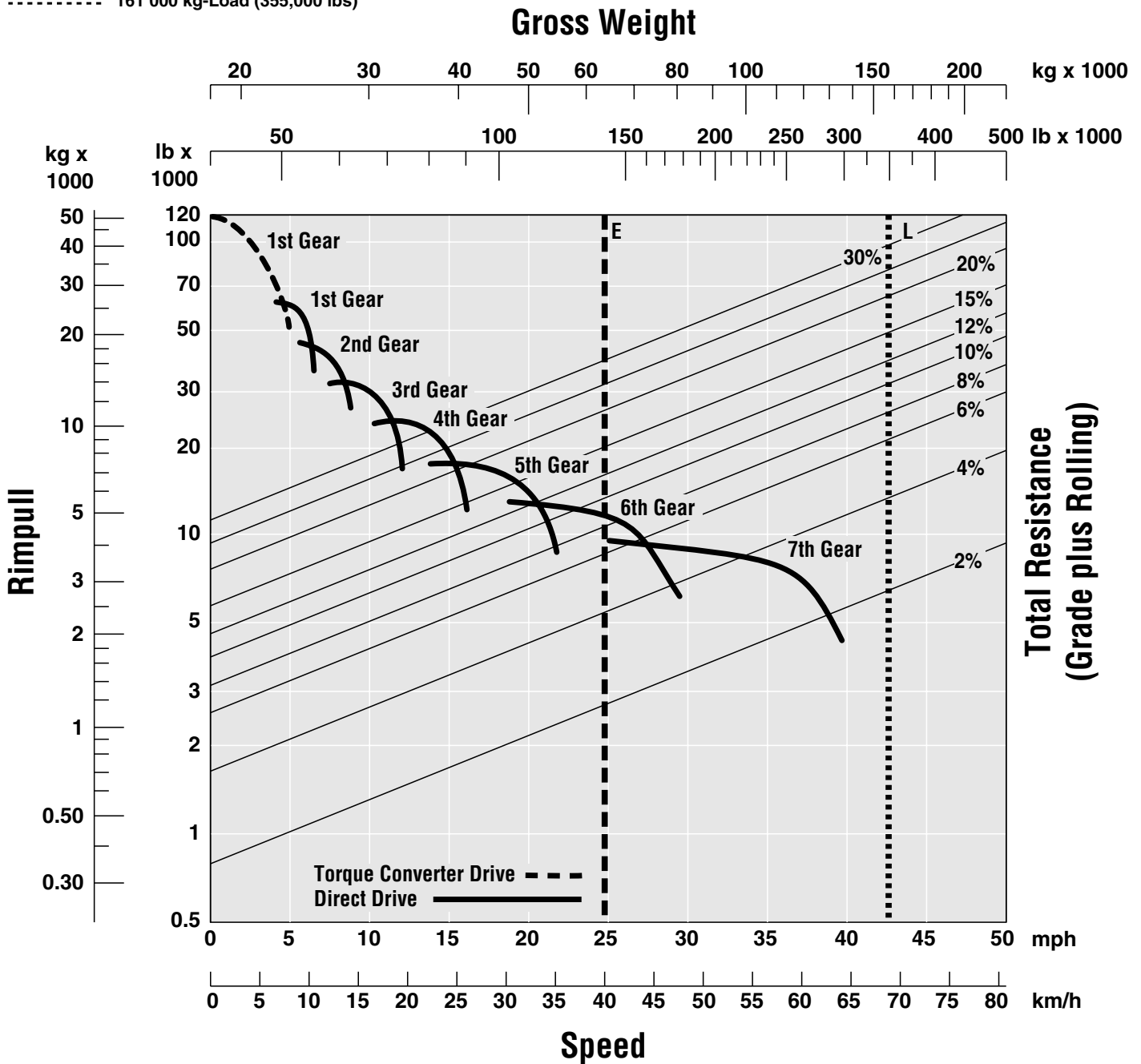
Service Refill Capacities

	L	U.S. Gallons
Fuel tank	1137	300
Cooling system	325	86
Crankcase	124	33
Differentials and final drives	329	87
Steering Tank	57	15
Steering System (includes tank)	84	22
Brakes, Converter, Hoist, Hydraulic Tank	220	58
Brakes, Converter, Hoist System (includes tank)	415	110
Transmission Hydraulic tank	81	21.5
Transmission System (includes tank)	138	36.5

Gradeability/Speed/Rimpull

To determine gradeability performance:
 Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/metric ton (20 lb./U.S. ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.

--- Empty Weight
 161 000 kg-Load (355,000 lbs)



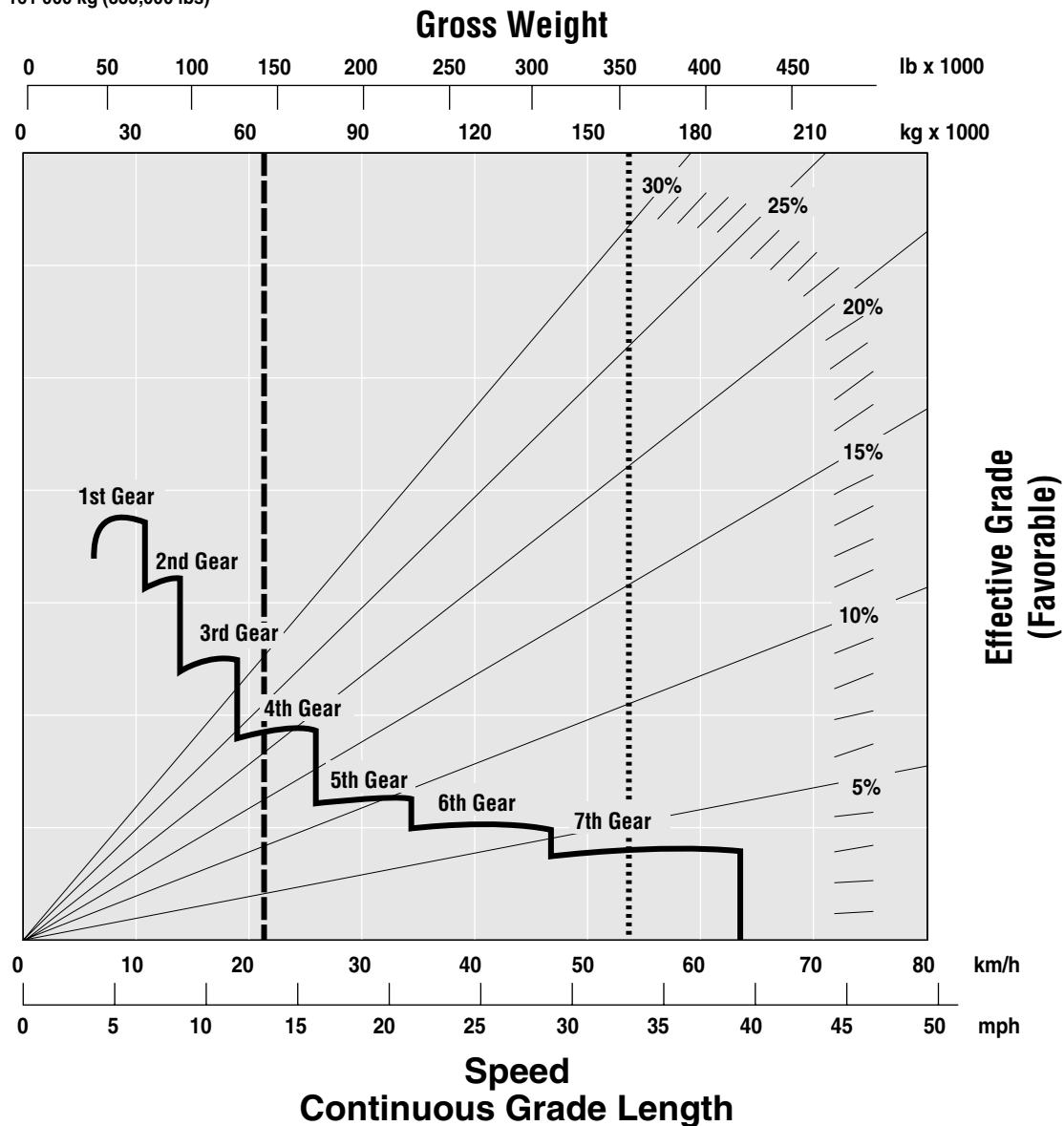
Retarding Performance

To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/metric ton (20 lb./U.S. ton) of rolling resistance. From this weight-effective grade point, read horizontally to the curve with the highest obtainable gear, then

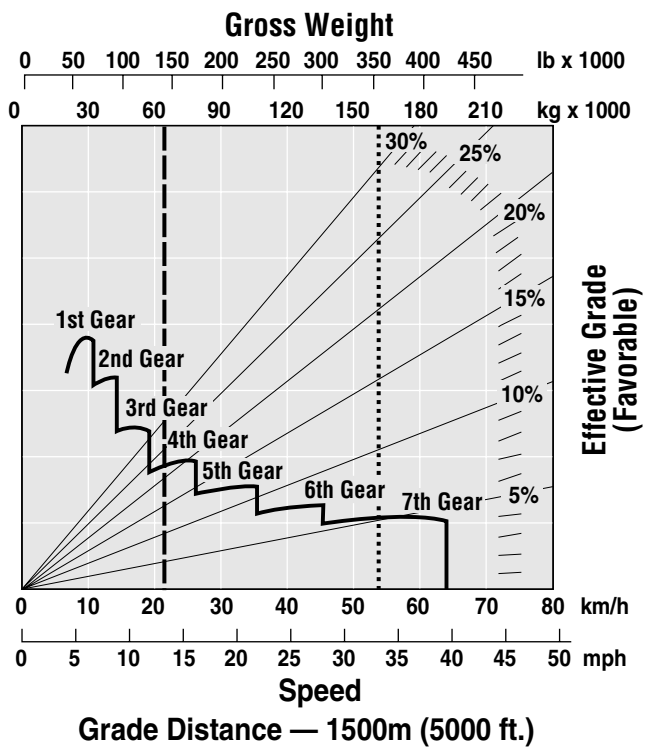
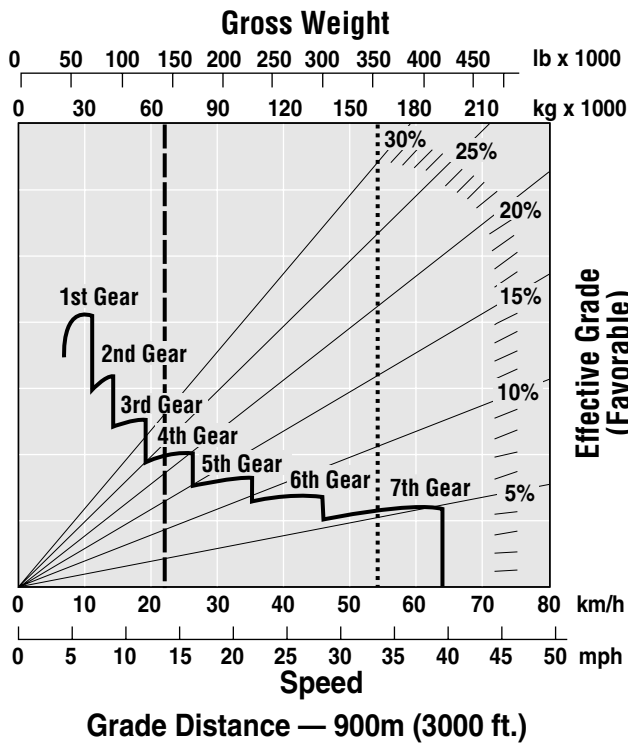
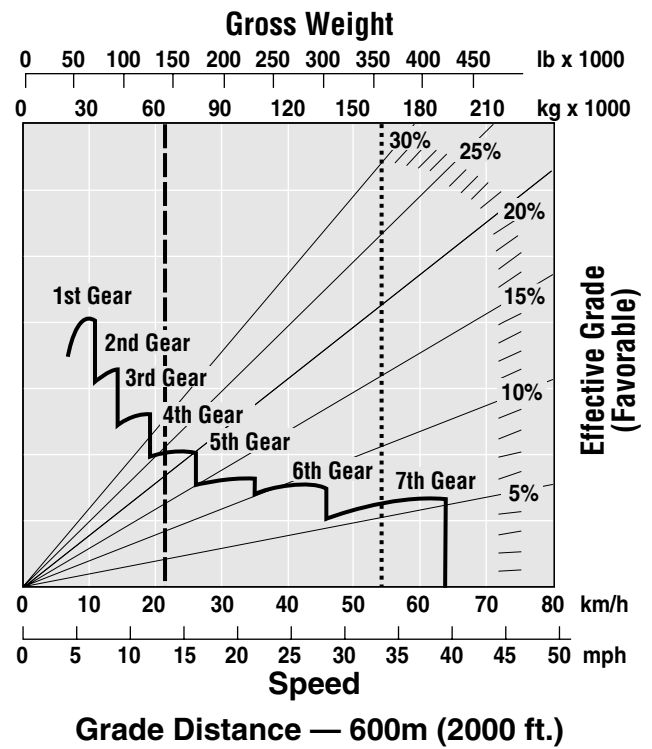
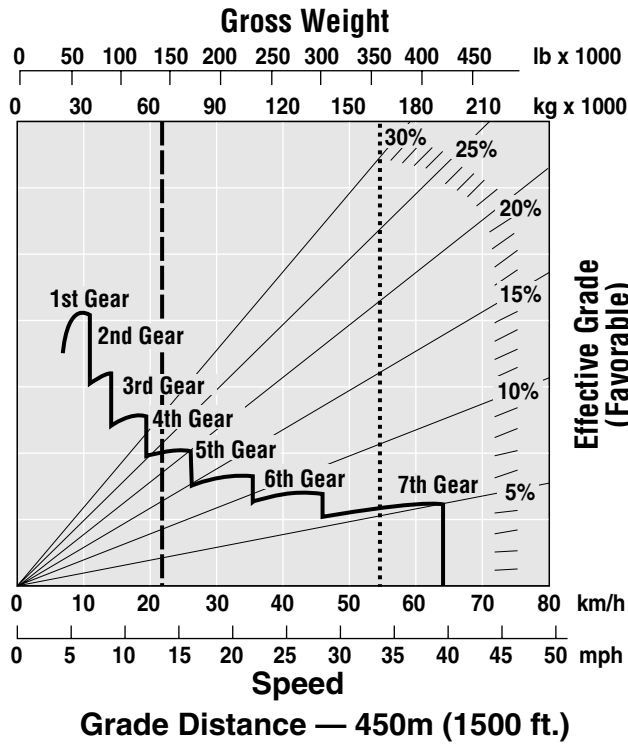
down to maximum descent speed brakes can properly handle without exceeding cooling capacity. The following charts are based on these conditions: 32°C (90°F) ambient temperature, at sea level, with 27.00-R49 tires and a properly maintained cooling system.

NOTE: Select the proper gear to maintain engine RPM at the highest possible level, without overspeeding the engine. If cooling oil overheats, reduce ground speed to allow transmission to shift to the next lower speed range.

----- Empty Weight
 Operating Weight
 161 000 kg (355,000 lbs)

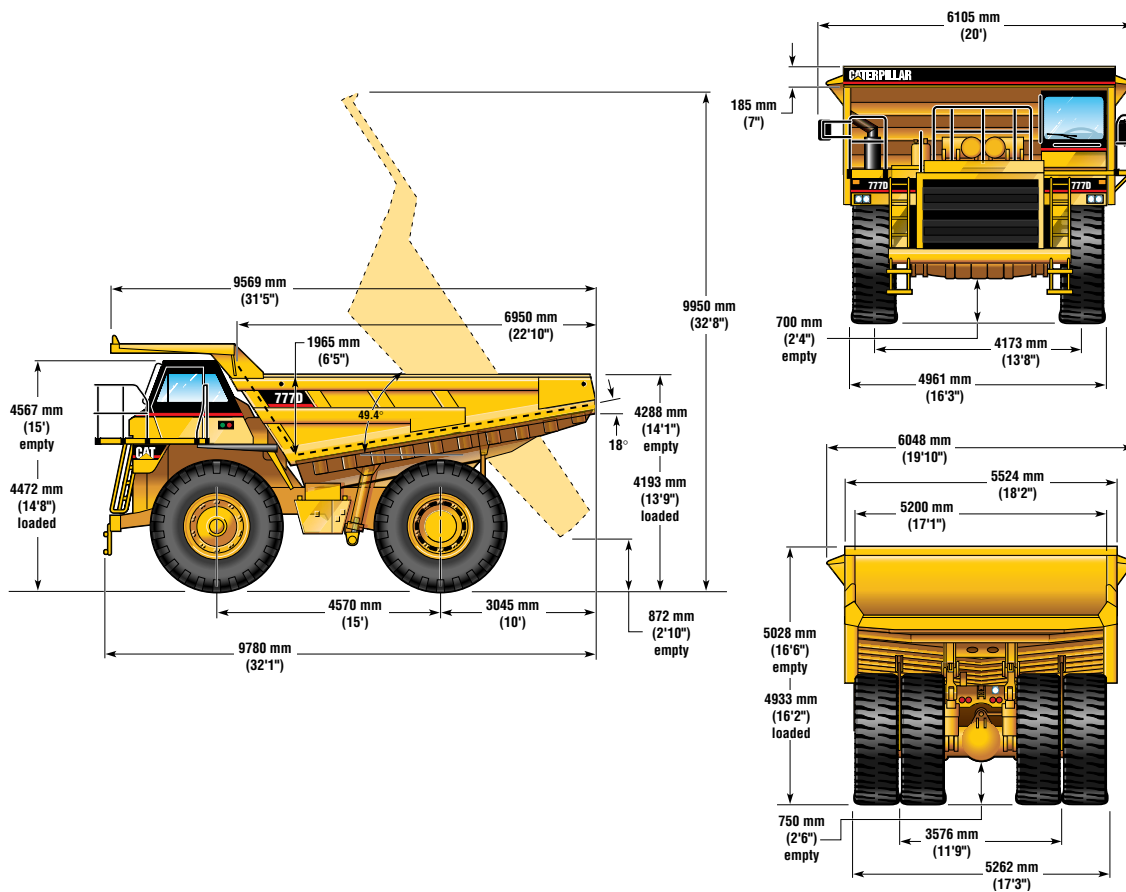


Retarding Performance



Dimensions

All dimensions are approximate.



Weights

(approximate)

	kg	lb
Total empty	64 400	141,900
Chassis with hoist and body mounting group	48 600	107,100
Body, empty	15 800	34,800

Weight distribution:

	Empty	Loaded
Front Axle	47%	33%
Rear Axle	53%	67%

Capacity

Dual slope - 100% fill factor.

	m ³	yd ³
Struck	42.1	55.0
Heaped 3:1	54.4	71.1
Heaped 2:1 (SAE)	60.1	78.6
Heaped 1:1	76.8	100.5

Tires

Standard: 27.00-R49.

- productive capabilities of the 777D Truck are such that, under certain job conditions, TKPH (TMPH) capabilities of standard or optional tires could be exceeded and, therefore, limit production
- Caterpillar recommends the user evaluate all job conditions and consult the tire manufacturer to make proper tire selection

Body

Dual-slope main floor with "V" bottom.

Features

- 10° forward slope, dual slope design for excellent load carrying characteristics
- 18° ducktail
- exhaust heating is standard
- load height (empty) 4288 mm (14'1")

Sidewall plate	10 mm	0.39"
Front plate	12 mm	0.47"
Bottom plate	20 mm	0.79"
Canopy plate	6 mm	0.25"

Standard Equipment

Note: Standard equipment may vary. Consult your Caterpillar dealer for specifics.

Air horn	Electronic Unit Injector engine	Retarder
Air line dryer	Gauges:	Rock ejectors
Alternator (100-amp)	Actual Gear Indicator	Seat belts, retractable
Back up alarm	Air pressure	Seat, passenger
Battery disconnect switch, ground level	Brake oil temperature	Sound reduction switch, body up
Body down indicator	Coolant temperature	Starting, electric
Body mounting group	Fuel	Steering, automatic supplemental, electric
Body up reverse inhibitor	Hour meter, electric	Steering wheel, padded, tilt and telescopic
Brakes:	Odometer	Tires, 27.00-R49, Radial, 2 star (E-4)
Oil-disc (front/rear)	Speedometer	Transmission, electronically controlled automatic power shift with downshift/reverse shift inhibitor, neutralizer during dumping, neutral start switch, engine overspeed protection, directional shift management, programmable top gear and body-up shift limiter and control throttle shifting
Parking	Tachometer	Vandalism protection locks
Secondary	Heater/defroster 7570 kCal (38,000 Btu)	Window, electric power (operator)
Brake (front) disconnect switch	Hoist lever, fingertip actuated	Windshield wipers and washer, electric intermittent
Brake heat exchanger	Jump start receptacle	
Brake release motor, for towing	Lighting system:	
Cab, ROPS:	Back up light	
Insulated and sound-suppressed	Dome/courtesy light	
Tinted glass	Hazard and directional signals, LED	
Radio ready	Headlights, Halogen, with dimmer	
Sun visor	Stop and tail lights, LED	
Caterpillar Comfort Air	Load counter	
Suspension seat	Mirrors, right and left	
Crankcase guard	Precleaner	
Drive line guard	Reservoirs (separate):	
Electric system, 24-volt	Transmission	
Electronic Monitoring System	Converter/brake/hoist	
	Steering	

Optional Equipment

With approximate changes in operating weights.

Note: Optional equipment may vary. Consult your Caterpillar dealer for specifics.

	kg	lb		kg	lb
Air conditioning	90	198	Muffler/Exhaust Diverter	77	170
Automatic Electronic Traction Aid	50	110	Oil change system, quick service	0.9	2
Automatic Retarder Control (ARC)	5.9	13	Starting system, low temperature, includes two additional batteries and extra starting motor	170	375
Engine Prelubrication	44	98	Truck Production Management System	60	27
Fuel system, fast-fill (Wiggins)	2.3	5			
Front Caliper Disc Brakes	- 240	- 530			
Heater, engine coolant	2.3	5			
Body liners [9207 bar/900 mPa (130,000 psi), minimum yield strength] 16 mm (.063") floor, 8 mm (0.31") front and sidewalls	5460	12,040			

777D Off-Highway Truck

AEHQ5140-02 (12-00)
Replaces AEHQ5140-01

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